

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IP20050331TA	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/N02005/000138	International filing date (day/month/year) 28/04/2005	(Earliest) Priority Date (day/month/year) 19/11/2004
Applicant MARINE CYBERNETICS AS		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. 1.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/N02005/000138

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G05D1/02 B63B49/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G05D B63B

Documentation searched other than minimum documentation to the extent that such documentation is included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 92/14216 A (EDGE DIAGNOSTIC SYSTEMS) 20 August 1992 (1992-08-20) cited in the application the whole document	1-16
A	US 6 298 318 B1 (LIN CHING-FANG) 2 October 2001 (2001-10-02) cited in the application the whole document	1-16
A	US 6 450 112 B1 (DEGHUEE BRADLEY J) 17 September 2002 (2002-09-17) cited in the application the whole document	1-16

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another claim or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *Z* document member of the same patent family

Date of the actual completion of the international search

31 August 2005

Date of mailing of the international search report

09/09/2005

Name and mailing address of the ISA

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Authorized officer

Philippot, B

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NO2005/000138

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9214216	A	20-08-1992	US 5214582 A	25-05-1993
			AT 204990 T	15-09-2001
			CA 2101336 A1	31-07-1992
			DE 69232029 D1	04-10-2001
			DE 69232029 T2	12-09-2002
			DK 575399 T3	10-12-2001
			EP 1116955 A2	18-07-2001
			EP 0575399 A1	29-12-1993
			ES 2163397 T3	01-02-2002
			JP 3081243 B2	28-08-2000
			JP 6505341 T	16-06-1994
			WO 9214216 A1	20-08-1992
US 6298318	B1	02-10-2001	TW 434525 B	16-05-2001
US 6450112	B1	17-09-2002	NONE	

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/NO2005/000138

International filing date (day/month/year)
28.04.2005

Priority date (day/month/year)
19.11.2004

International Patent Classification (IPC) or both national classification and IPC
G05D1/02, B68B49/00

Applicant
MARINE CYBERNETICS AS

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/NO2005/000138

Box No. 1 Basis of the opinion

1. *With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.*
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. **With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:**
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/NO2005/000138

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations**see separate sheet**

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/NO2005/000138

Re Item V.

- 1 Reference is made to the following document:
D1 : WO 92/14216 A (EDGE DIAGNOSTIC SYSTEMS) 20 August 1992 (1992-08-20) cited in the application
- 2 Document D1, which is considered to represent the most relevant state of the art, discloses a system from which the subject-matter of independent claim 1 differs in that the system of claim 1 comprises a signal modifying computer arranged for being connected for receiving real measurement signals, modifying said real measurement signals into modified measurement signals that depend on real values of said real measurement signals, said modifying computer arranged for sending said modified measurement signals to the control system, one or more of said measurement signals replacing some or all of the real measurement signal input.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The problem to be solved by the present invention may be regarded as enabling testing of a control system function on virtual errors imagined to occur in one or more sensors.

The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

The effect of the additional features of claim 1 over the prior art is to allow the scaling of one or more feedback signals with an offset and a gain for each signal, thus providing the test system with the ability of testing the control system on virtual sensor errors represented by the modified measurement signals independently, whereas the prior art discloses the use of simulated signals coming from out of the control loop only.

The use of such independently modified real measurement signals is not known in the prior art and is not obvious for the person skilled in the art.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

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- 3 The independent method claim 9 is equivalent to the independent system claim 1 and as such is also novel and inventive.
- 4 Claims 2-8 and 10-16 are depending on claims 1 and 9 respectively and therefore are also novel and inventive.